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Recent Advances in Small-Animal Medicine*

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GREAT advances have been made on the therapeutic side of small-animal medicine in the course of the last 20 years, due in the main to the introduction of the chemotherapeutic agents and the antibiotics. In surveying material for this paper, I realised that it would be possible to make a most impressive catalogue of those diseases where antibiotics had improved therapy but it would have constituted a dreary recital of what, after all, is familiar to most of us, if from no other source than the liberal mail we receive most mornings from the pharmaceutical suppliers. Furthermore, the position is so fluid and advance so rapid in this field that a paper written in June would be out of date by the end of July. I might use this as an excuse for my tardiness in sending my paper to your Secretary but I would scorn to take refuge behind such a pretext and will only say in extenuation that my preoccupation with academic work left me little time for recording on paper my conception of the current state of our knowledge in the field of small-animal medicine.

Without in any way disparaging the importance of the introduction of the antibiotics, etc., I would contend that the most important advances in the medical field, both from the point of view of the veterinary surgeon in practice and the research worker, have arisen from new knowledge of the aetiology, pathogenesis and general understanding of disease processes. In this field much new information has become available in both human and veterinary medicine. Probably the most important single factor contributing to this new knowledge is the widespread application of the experimental method in biological research in all branches of medicine. As a result of the longer establishment of medical human science, the large number of workers taking part in it, and the opportunities for the development of specialists, a large body of scientific knowledge has been built up in the medical field from which veterinarians have benefited and drawn freely. With improved facilities for veterinary research, veterinarians are contributing an increased volume of useful additions to medical science and these may be of importance in either the medical or the veterinary field.

In the recent changes in veterinary education in Britain the veterinary schools are developing in close contact with the medical schools, I think to the benefit of both sciences. I do not in any way minimise the importance of our relationship with agriculture, and accept that agriculture is our *raison d'être* and that the veterinary profession is inextricably linked with it. If the profession is to fulfil its proper function, however, veterinarians in schools the whole world over, must receive in the broadest sense a sound training in the fundamentals of medical science. Inevitably diversity will appear in different parts of the world in orientating students in the particular field of agriculture which has been developed in their country. Thus, considerable variation in the practical application of veterinary science will take place the world over but there can be no departure from the fact that we are medical specialists in the veterinary field.

In my paper I shall discuss a number of those conditions where there has been considerable advance in the recent past as the result of the introduction of new therapeutics or prophylactics or new data have become available in a particular disease.

I think the most important advance in small-animal practice in the recent past has been the use of ancillary aids for diagnosis. At this congress I am giving a paper on advances in surgery † and I stress there that many of the aids used in surgery apply equally in medicine. In to-day's paper I would like to stress what

* Paper presented to the Caribbean Veterinary Congress, Kingston, Jamaica, 1956.

† This paper entitled "Recent Advances in Veterinary Surgery in Relation to Small-Animal Practice" will be published shortly.

I call clinical laboratory methods. These are, of course, complementary to standard physical examination and no substitute for it and I realise, as one who has been in practice, that it would be impossible, and indeed unnecessary, to apply laboratory methods in every case for which one had responsibility. No practitioner who wishes to preserve his intellectual integrity can adopt the attitude of a scientific Sadducee and neglect completely that group of cases occurring in every practice which defy diagnosis. Many practitioners recognise certain conditions as clearly defined disease entities and may be in a position to say that these cases will all reach a fatal termination. Within their own knowledge and method of approach this is no doubt correct but it may well be that in this group additional knowledge of the fundamental disease processes would allow of improved diagnosis and possibly treatment. It is in this relatively small group that the busy practitioner should make full use of clinical laboratory methods. I consider that any practice is incomplete which does not have a small laboratory fitted out for the biochemical and microscopical examination of specimens of body fluid ; much of the tedious routine in connexion with this work can be carried out by a trained lay person, the end results being confirmed by the veterinarian. I make a very brief, and not even comprehensive, list of what can be done in this way by an enthusiastic practitioner. Details of the tests can be got in a good text-book.

The paper then proceeded to describe aspects of skin examination for mange, lice and parasitic fungi. Urine examination, and microscopical, chemical and physical examinations, including darkground illumination for the demonstration of leptospirae, were mentioned, and also blood examination, including all the tests used in routine human haematology, together with examination of faeces and examination of thoracic and ascitic fluid both biochemically and microscopically. There has been the tendency in veterinary medicine to presume that clear-cut syndromes are identical with disease entities. The most obvious case was jaundice. It is now widely appreciated that icterus can arise from a wide variety of conditions, both hepatic and extra hepatic, and it is also appreciated that extensive liver disease can occur without jaundice. I would like to draw attention to the classification used by my medical colleagues in the Veterinary Hospital in Glasgow and the routine sideroom methods that are used in these cases.

I.—Hepatic Disease

Mild Acute Hepatitis

Accompanies any febrile disease.

Severe Acute Hepatitis

Without icterus	*With icterus*
e.g., Rubarth's disease.	*e.g.*, L. icterohaemorrhagiae. Phosphorus poisoning. Rubarth's disease. Acute idiopathic cytolytic necrosis.

Chronic Hepatic Failure

Without ascites	*With ascites*
e.g. Lymphosarcoma metastasis. Cirrhosis. Post-necrotic scarring.	

Extra Hepatic Icterus

(1) Bile duct obstruction, *e.g.*, neoplasia pancreas.
(2) Haemolytic

During the past 4 years the following group of hepatic function tests has been used to study the differential diagnosis of the animal which may be presented with :—

(1) Icterus
(2) Wasting with ascites
(3) Wasting without ascites

The Van den Bergh test for bilirubin, total serum protein A/G ratio, thymol turbidity, alkaline phosphatase and bronsulphthalein clearance. It is too soon yet to assess fully the diagnostic usefulness of these function tests in canine work.

By a close study of these liver tests it is possible to ascertain in many cases the nature of the damage that has taken place in the liver. In other cases it may be advisable to do a biopsy, removing a small piece of liver and finding out the exact nature of the changes that have taken place.

II.—Leptospirosis

In Scotland, leptospirosis associated with icterhaemorrhagia does not appear to be an urban disease. I have found more cases in country dogs than in town dogs and this in spite of the fact that a very large number of the rats which carry the disease are affected in the Glasgow area. The disease appears to be endemic in certain areas and is always associated with a high mortality, some cases dying in the peracute stage often associated with intussusception. There is very little new information about this particular disease.

Leptospirosis canicola

The same is not true, however, about Leptospirosis associated with Canicola. This disease is very common in Britain. A recent survey carried out in Glasgow has shown that 37 per cent. of dogs attending a clinic in Glasgow showed evidence of having been affected.

During the last decade considerable advance has been made in methods of diagnosis and prognosis of this disease in dogs. Acute clinical syndromes can be confirmed by detecting Leptospirae in the urine by dark ground examination. Over 50 per cent. of acute cases excrete Leptospirae and 70 per cent. of mild cases. Blood agglutination tests can also be used—a rising titre indicating a current infection, a high titre a recent one and a low titre a past infection. The prognosis given for these renal cases can be much more accurate if facilities for blood urea estimation are available. In those cases where high levels of blood urea occur in the early stages an exceedingly grave prognosis should always be given as experience has shown that such cases suffer extensive destruction of kidney tissue and even if temporary recovery takes place, impaired kidney function is progressive.

It has been shown that many dogs which recover from acute leptospirosis develop a steadily mounting renal hypertension. Systolic blood pressure of 230 mm. Hg. have been recorded and examination at autopsy reveals typical glomerular hyalinisation and arterial muscular hypertrophy and left ventricular hypertrophy. The stroke volume of the left ventricle

is greatly reduced and some of these cases die of cardiac failure.

The outstanding clinical features in early cases are fever, dullness, thirst, vomiting, loss of appetite and weight in young dogs. There is usually an absence of catarrhal signs and jaundice is only rarely present.

Note ; The Stuttgart Syndrome

The name of this syndrome originated from a canine epidemic which occurred in the late 19th century in Stuttgart. It was characterised by anorexia, vomiting, diarrhoea, renal failure and a spirochete was described as being associated with it. One of the features of the disease was an acute inflammatory condition of the mouth associated with some degree of ulceration and in some cases with necrosis of the tongue and buccal mucosa. In the 1920's there were frequent references to Stuttgart disease in the literature describing a condition in Britain associated with the development of an illness in which mouth lesions were often present but it was not recognised until 1947 that *Leptospira canicola* was the most common cause of this condition. Until Stewart & McIntyre's paper in 1949 it was not appreciated that *Leptospira canicola* was so widely distributed among the dog population and it was some time until it was also realised that the so-called " Stuttgart syndrome " could develop either in the acute stages of the disease or as a sequel associated with kidney failure. Thus, there were many features of the epidemiology difficult to explain. It has been known for a long time that dogs suffering from nicotinic acid deficiency will show similar buccal lesions and cases occur in Britain where shepherds' collies fed on a diet of oatmeal and maize develop mouth lesions which are similar to but not identical with those in experimentally produced nicotinic acid deficiency. The condition is described as " red mouth " and may be associated with a deficiency of substances other than nicotinic acid. There is a good deal of evidence to suggest tryptophane is involved and perhaps other members of the B group. There is also evidence to indicate that about 10 per cent. of cases of nephritis in dogs are not associated with leptospirosis at all yet any of these conditions can give rise to the buccal lesions previously associated with Stuttgart disease. The obvious course to follow is to apply the term " Stuttgart syndrome " to these lesions recognising the multiplicity of causes that may be involved. I have not even enumerated all of them. In certain diseases associated with nutritional upset lesions may develop.

Montgomerie & McIntyre & Platt have added a great deal of information about the pathology of this disease and it is now recognised that the osteodystrophia which appears clinically as a softening of the bone of the jaw (so-called " rubber jaw ") is almost invariably associated with nephritis. A number of people recognised this in the past but until these workers made their contribution to the literature it was not appreciated that in practically every case of nephritis there was loss of calcium from the skeletal system occurring in varying degrees and not always clinically demonstrable.

III.—Lymphosarcoma

I would now like to discuss this subject on which a considerable amount of new information has become available. My colleagues at the Veterinary Hospital in Glasgow have gathered together a good deal of new information on this group of diseases, approaching the problem from the surgical, medical, haematological and pathological point of view. We have found the lymphosarcoma group of tumours to be one of the commonest neoplastic diseases in the dog and cat and one of the most protean in its clinical manifestations. Such tumours occur in three main groups :—

(1) Multicentric lymphosarcoma.
(2) Regional multifocal lymphosarcoma.
  (*a*) of the mesenteric complex
  (*b*) of the thorax
(3) Primary lymphosarcoma with metastatic dissemination.

These 3 syndromes are relatively well defined clinically and pathologically.

The basic pathological picture is identical in all 3 groups, *i.e.*, malignancy of cells of the lymphoid series with varying degrees of de-differentiation occurring in individual cases ; therefore, there is no point in any more complicated oncological terminology than plain lymphosarcoma. The specific human conditions of Hodgkin's disease, giant follicular lymphoblastoma, etc., have not been observed in the dog and cat.

Group (1) Multicentric lymphosarcoma

This is analogous to lymphatic leukaemia in the human subject being a systematised neoplasia of the lymphatic organs with splenomegaly and often anaemia ; however, lymphatic leukaemia, *i.e.*, the presence of increased numbers of lymphocytes in the blood is rare in dogs and cats, although atypical lymphoid cells are seen in blood smears and a high polymorphonuclear leukocytosis is common.

Group (2) Regional multifocal lymphosarcoma

This is by far the commonest type and typically shows one or more ulcerating fusiform tumours of the stomach or intestine with markedly enlarged mesenteric nodes and often hepatic infiltration. The spleen is seldom enlarged. The clinical signs are wasting and inappetence some cases showing ascites. The abdominal masses are usually easily palpable. Blood changes are uncommon.

Then the thoracic nodes are regionally affected, tachypnoea is the presenting sign. Hydrothorax is usually present and the trachea may be displaced—a feature that can be shown on X-ray examination.

Group (3)

Lymphosarcoma also occurs as a primary tumour of various organs, *e.g.*, kidney, skin, bladder, etc. Secondary metastasis is similar in distribution to other sarcoma and symptomatology is usually referable to the site of origin.

Clinical manifestations may be especially diverse, and often bear no relationship to size of tumour and appear to produce their more obvious effects by interference with function. Thus, a small lymphosarcoma at the head of the pancreas may give rise to a syndrome in which jaundice is the main manifestation ; a very large one may develop in the mesenteric glands causing few if any signs until it causes some obstruction and

one in the bladder may give rise to hydronephrosis or urinary stress.

Careful examination may reveal even the most inaccessible of these but many of the smaller ones are only obvious at an exploratory operation. It is good practice in obscure cases referable to the abdomen where the usual tests have failed to reveal an obvious cause to carry out exploratory operation.

Treatment is of little avail. In Group (1), the multicentric type, some improvement in clinical signs has been noted with the administration of certain therapeutics, *e.g.*, urethane, and with a tumour inhibiting substance that has been used to control experimentally produced tumours in mice. The effect, however, is transient, occasionally dramatic but subsequent administration when the swellings reappear usually fails to effect any regression.

IV.—Gastric Ulceration

I would like to say a few words on this condition as there are few records in the veterinary literature on the occurrence of ulceration of the stomach in our patients. In the last few years, however, a number of cases have been put on record in most of the domestic animals. In dogs and cats admitted to the hospital in Glasgow we have found the condition associated with both inflammatory conditions, including tuberculosis, actinomycosis and neoplasms. We have also recognised gastric ulceration in cats with perforation resulting in peritonitis and abdominal tympany. The ulcers, in some cases, appear to be like peptic ulcers occurring in human beings. A great deal of information is now available on the experimental production of ulceration in dogs and the factors that are important in producing it, but it still remains true to say that gastric ulceration is not a common condition in practice.

V.—Cardiac Disease

(1) *Valvular lesions*

(*a*) Mitral incompetence. Most common.

(*b*) Tricuspid incompetence. Both produce systolic murmur.

These are presumed to be due to a previous bacterial infection either leptospiral or other unidentified organism causing an endocarditis. At autopsy of acute leptospiral cases there are cardiac lesions which could easily give rise to chronic incompetence.

(2) *Pericarditis*

(Often tuberculosis in dogs).

(3) *Myocardial lesions*

(*a*) Bacterial

(*b*) Thiamine deficiency. Greyhounds and one possible case—a 9-year-old Cocker Spaniel—which had been fed only on tinned meat for 6 months. Investigation has been carried out into this condition in Glasgow and it has been found that where the diet is faulty it is possible for animals to develop a thiamine deficiency associated with myocardial lesions and acute failure. This slowly developing deficiency is quite different clinically from the nervous syndrome associated with acute deficiency seen in Chastek paralysis which is associated with the presence of an enzyme thiaminaise in the diet.

(*c*) Left ventricular hypertrophy of such degree as to induce cardiac failure. This condition may be a sequel to *Leptospira canicola*. My medical colleagues in the Veterinary Hospital have studied the conditions under which cardiac failure occurs in the dog. They find the cardiac failure syndrome of the "forward failure" type most common. It is associated with :—

Lowered left ventricular output ;
Decreased renal pulsation rate ;
Increased retention of water and sodium ;
Build up of oedema in tissue spaces, subcutaneous and in body cavities ;
Jugular veins become engorged ;
Pulmonary oedema finally appears.

The only essential difference in the so-called "backward failure" is that in the case of pneumonia there is a large pulmonary block to right ventricular output and so to the pulmonary return to the left ventricle and the cycle goes on as in forward cardiac failure.

E.C.G. Examination is useful in providing evidence of myocardial damage and wherever possible it should be carried out. It establishes beyond doubt the presence of auricular flutter, auricular fibrillation and also conditions interfering with the conductivity mechanism of the heart.

Radiography has a very large part to play in the field of diagnosis in the area of the chest, enlargement of the heart, pleurisy, pericarditis. The presence of enlarged lymph nodes and the presence of metastasis in the lungs can readily be picked up by this means. In addition it is possible to recognise traumatic pneumopleura and other abnormalities by this means. In the past radiology was used primarily in relation to surgical conditions but it has an extremely important part to play in the vast field of chest disease from the medical point of view.

I would like to mention here the pleurisy occasionally found in the cat. This condition usually has a fatal termination and even *post-mortem* fails to reveal any obvious reason for its development. More recently, streptomycin has given promising results in a very limited number of cases when used topically and parentally.

In the dog, pleurisy is often of tuberculous origin. The leading clinical signs are dyspnoea and loss of resonance. It has been relatively easy to demonstrate the presence of the acid-fast organisms in the exudate by direct smear.

VI.—Toxicology

I would like to mention very briefly some problems in the field of toxicology in relation to small animals. The widespread use of insecticides like DDT and benzene hexachloride has given rise to poisoning in cats and dogs. These substances effect their control by paralysing the nervous system of insects and when ingested in a large amount by mammals give rise to tremors, convulsion and death associated with respiratory failure. Nervous disease is less common in cats than dogs and the sudden onset of nervous symptoms in this species should lead one to investigate the possibility of contact with insecticides. Barbiturates are given to control clinical signs and steps are taken to prevent recontamination.

Lead poisoning

Lead poisoning occurs in dogs, and in established cases treatment has been of little avail in the past.

Recent work by L. W. Holm (1953) and his colleagues using calcium versenate* opens up new possibilities in this field. When the salt of calcium is administered to an animal in the presence of lead the calcium is displaced by the lead to form a non-toxic substance which is insoluble at the normal blood *p*H. So far we have not had an opportunity of trying this treatment in dogs but it seems to have a reasonable chance of being successful.

Dicoumarol

Dicoumarol under various trade names is being used extensively to control rats and mice and there has been an increased number of cases of poisoning associated with its use. This anticoagulant substance prevents clotting at the prothrombin level and minor injuries to an animal can cause fatal haemorrhages. Fortunately cases respond to blood transfusion even if they are *in extremis*.

VII.—Virus Diseases in Dogs

At one time it was suggested that I should write a paper on the virus diseases of dogs for this Congress but I am sure the time is not opportune. The picture of the group of diseases called "distemper," "hard pad," "paradistemper," is not by any means clear at the moment and the position is probably more confused than it was 10 years ago. There is no doubt that C.C.H. or Rubarth's disease is a distinct disease entity caused by the same virus that was first isolated by Greene in association with fox encaphalitis, but I consider there is little evidence to justify the consideration of "paradistemper," or "hard pad," as it has sometimes been called, as a separate entity distinct from distemper. Campbell and his colleagues in the Glasgow School do not consider that this separation is justified.

(i) *Contagious canine hepatitis (Rubarth's disease)*

Rubarth observed that 80 per cent. of his cases occurred in animals under 1 year of age ; in Glasgow the corresponding figure was 50 per cent.

There is evidence that animals may develop an asymptomatic form of the disease and become immune, developing complement-fixing antibodies that can be demonstrated.

In cases that have occurred in the Glasgow area the main clinical signs that have been detected and that have finally led one to suspect the presence of the disease have been vomiting, pain in the abdomen, ascites, high fever, short illness, pallor of the mucous membranes and ascites. There is no single pathognomic sign and a diagnosis on clinical grounds will no doubt always be difficult. Whenever there is evidence, especially in a young dog, of acute sickness and great dullness, particularly if the condition is rapidly progressive, and there is no demonstrable cause for this condition, the possibility of the occurrence of Rubarth's disease must be kept in mind. Often a case that appears to be a relatively mild digestive disturbance in the first place and which might lead one to suspect the presence of a foreign body is ultimately proved to be a case of contagious canine hepatitis. Such cases will often suddenly worsen and show profound cardiovascular disturbance associated with pallor and apparent shock-like disturbance terminating in an early death. Jaundice occurs in a small percentage of cases.

So far no antibiotic has proved specific but hyperimmune serum has been claimed as being beneficial.

(ii) *Distemper (Hard Pad Group of disease).*

Eight to ten years ago distemper and hard pad disease were presumed to be separate entities with only slight antigenic relationships but the evidence that has become available since does not appear to support this viewpoint. The claim that these viruses are biologically different has not been substantiated by the work of Mansi (1951), Burkhardt *et al.* (1950), Koprowski *et al.* (1950), Cabasso & Cox (1952) & Cabasso (1952).

In a survey carried out by Campbell *et al.* in 1954 in dogs they failed to demonstrate any clinical or histological difference in dogs showing the distemper and hard pad syndrome in the Glasgow area.

It must be accepted that any living organism can undergo genetic variations and indeed there is ample evidence that this is true of the distemper virus. As long ago as the early forties, Greene of Minnesota modified the distemper virus by 55 ferret passages and produced a strain that could be used as a prophylactic in dogs. The virus was capable of producing a highly fatal disease in ferrets while its administration in dogs was followed by only slight clinical signs and it appeared to protect dogs against the natural disease. Mansi (1951) isolated from an actual case a strain which he called Glasgow 123, thus proving that variations could occur in the field. It was invariably neurotropic when injected into ferrets but not always so in dogs. In ferrets it produced peculiar screaming fits. It was, however, serologically and immunologically identical with ordinary distemper virus. Later Hague of South Africa adapted Greene's virus to eggs and produced a prophylactic which had many advantages over one prepared from animals.

Another disease that appears to be related in some strange way to this group, although it is not, of course, a virus disease, is toxoplasmosis. The exact significance of the presence of Toxoplasma in tissue is not yet known. Workers abroad have isolated this parasite in a wide variety of domestic and wild animals and the exact relationship of the organism to clinical signs is not yet well established in relation to distemper. Campbell of Glasgow has isolated Toxoplasma from the brains of about 10 or more dogs which had shown nervous signs and where there was clinical and pathological evidence of distemper ; so far he has not demonstrated its presence in dogs not affected with distemper. This organism appears to be widely distributed and may be present in an animal without producing clinical signs.

The present egg-adapted vaccine for distemper has become widely used with a high degree of success although occasionally practitioners report that the administration may be followed by the development of nervous signs. It is unlikely that those signs are the result of the injected virus-causing disease as the results appear very soon after the injection but the virus might light up some latent condition that might not in other circumstances ever have caused any trouble.

* Rikes Laboratories, Ltd.

I would not like to say very much more on this group of diseases at the moment. I feel that until new fundamental information is available it will be very difficult to make clear-cut pronouncements in this group.

Other viruses may be present in dogs and may be widely distributed without normally giving rise to clinical signs. There is distinct evidence that the L.C.M. virus can pass from dog to dog causing few if any clinical signs although we are aware that this virus in man may, in special circumstances, cause fatal disease.

We also know that Aujeszky's disease occurs in dogs in Ireland and produces a fairly characteristic syndrome with mad itch, an early paralysis and other evidence of involvement of the central nervous system. Fortunately its presence may be clearly established by biological means at the *post-mortem* examination. It may have a much wider distribution than is recognised at present.

A great deal of work is going on in this group of diseases. I feel that a clear picture will no doubt emerge but it may be that factors, as yet not understand, play an important part. For instance, J. R. M. Innes (1949) drew attention to the interesting demyelinating condition which can develop in the brain of a rabbit associated with the injection of nervous tissue with adjuvants. This appears to rest on some anaphylactic basis and it apparently depends on the injection of nervous tissue. Innes considers that it is highly unlikely that this phenomenon can explain the sudden development of nervous signs after the administration of distemper vaccine and I think the evidence supports this view. It is a fact, however, that fatal nervous manifestations which follow rapidly after the distemper vaccination in a very small proportion of cases have never been satisfactorily explained.

VIII.—Virus Diseases in Cats

The position here is much more clear than with the dog virus diseases. There are two main clinical syndromes, and probably 3 viruses commonly involved, but in practice the clinical picture may be confused by the presence of two viruses in the one outbreak.

(i) *Panleukopoenia, or Feline Enteritis*

This disease is well known to practitioners and is often misleadingly called cat "flu." Its presence in an area demands the establishment of high standards of hygiene in the practitioner's surgery, consulting room and hospital to ensure that the disease does not pass from affected to healthy animals. The virus appears to be very easily spread, resists destruction and persists for long periods. The mortality varies in an outbreak but when the disease meets a healthy susceptible population, as happens when it is first introduced to a district or when a house cat that has been kept in complete isolation is infected, the mortality may be very high, even 100 per cent. There is some evidence that in certain outbreaks the sulphonamides or penicillin are useful in treatment.

Chloramphenicol has been used recently and appears to be a very satisfactory therapeutic and if combined with measures to maintain the animal's body fluids many cases recover.

(ii) *Ulcerative Glossitis*

The exact status of the condition referred to as ulcerative glossitis is not yet known but animals showing this syndrome appear almost invariably to recover. It is probably related in some way to the panleukopoenia and in my experience cats which recover from ulcerative glossitis appear to be immune to the latter. The position should be relatively easily established when routine serial blood examination is carried out in these cases during an outbreak.

(iii) *Cat Influenza or Pneumonitis*

In these cases the condition may be caused by one of two viruses but there is little opportunity for differentiating these on clinical grounds nor is it necessary from the therapeutic point of view as both diseases appear to respond reasonably well to sulphadimidine and to the antibiotics. In any event the mortality in this disease is not so high and occurs in epidemic form mainly where large congregations of cats are assembled in boarding or breeding kennels. In actual practice the disease tends to be associated with management and can be controlled by suitable housing. An open air system either in the form of individual hutches or on a colony system combined with suitable hygiene will minimise the occurrence of the disease and if it is introduced will limit the spread.

Acknowledgments.—The subject matter covered in papers dealing with the advances in veterinary medicine and veterinary surgery is so extensive that it is extremely difficult for any one person to be *au fait* with all the recent developments. I have drawn mainly on the help of my colleagues at the Veterinary Hospital in Glasgow in preparing this paper. It would be invidious to select one or two names for special mention. Indeed, it would be exceedingly difficult because of the fact that we have accepted as policy in research the necessity for teams of people working together with diverse qualifications. In the text I have mentioned some by name, particularly when referring to work that has not yet been published or is in press.

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I had prepared a list of references for this paper but, inevitably in one of this kind which covers so much ground, the list was exceedingly formidable. I have not included it in its entirety but only those references which might not be familiar.

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The Activity of the Uterine Cervix in Ruminants

BY

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IN human obstetrics attention has recently been directed at the contractility of the cervix and the part this may play in labour. It has been shown that smooth muscle exists in the wall of the cervix (for review see Hughesdon, 1952), and that circular strips of cervical tissue, from man and animals, may contract when suspended in an isolated organ bath (Newton, 1937; Bonnycastle & Ferguson, 1941; Danforth, 1954). Controversy nevertheless exists as to whether this contractile power is capable of significant sphincter-like action *in vivo* since the cervix contains much collagen (Nixon & Schild, 1955; Danforth, 1955). Changes in pressure within the lumen of the cervical canal, attributed to the compressor action of cervical muscle, have, however, been recorded, in man by Woodbury *et al.* (1947), Karlson (1949), and Schild *et al.* (1951), and in laboratory animals by Adler *et al.* (1944), and Schofield (1952).

Recent correspondence in this journal (April to May, 1957) has indicated a virile interest in related problems of obstetrics in cows and sheep but, despite this interest very little is known of this aspect of uterine function in ruminants. Preliminary histological observations by the author (1950) indicated that circular smooth muscle fibres occur in the wall of the cervix of ruminants and that strips of bovine cervical tissue cut transversely, when suspended in an isolated organ bath have the power of contraction. Experiments are here reported indicating that contractions can be recorded from the cervix in intact cows and sheep and that these are independent of contractions of the body of the uterus. A more detailed account will be published separately.

Methods

The recording apparatus was similar to that used by Schild, Fitzpatrick and Nixon (1951) for simultaneously recording the contractions of cervix and corpus in pregnant women, and was based on the use of small rubber balloons to measure and record intra-uterine and intra-cervical pressures.

Two balloons, of 1 to 2 ml. capacity, were mounted on a hollow, 2-channel, metal catheter so designed that the lumen of each balloon communicated with a separate channel in the catheter. Pressures to which the balloons were subjected during muscular contraction were independently transmitted through the catheter and appropriate connecting tubing to two recording manometers writing on Kymographs. The whole system was water-filled and could record intra-uterine pressure changes of 0.5 mm. Hg. In cows the catheter was inserted *per vaginam* in the usual manner for uterine catheterisation and guided into position by manipulation *per rectum*. (In sheep this guiding manipulation necessitated a temporary laparotomy.) When in place the terminal (corpus) balloon was situated just caudal to the bifurcation of the uterine horns, with the second (cervix) balloon midway along the cervical canal. This position was maintained by clipping the catheter to the vaginal protuberance of the cervix. The balloons were deflated for the catheterisation and when in position

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Recent Advances in Small-Animal Medicine.—*Concluded.*

DISCUSSION

Mr. L. Geffen took the chair at the session at which Mrs. Pronger read Professor Weipers's paper entitled "Recent Advances in Small Animal Medicine."

Dr. S. Bennett (Trinidad) was called upon by the Chairman to open the discussion on this paper. Dr. Bennett complimented Mrs. Pronger on the way in which she had deputised for Professor Weipers. He said that he felt some of the techniques which had been described were too time-consuming for general use in private practice in the British West Indies. He added that he had seen several lymphatic neoplasms which, under Professor Weipers's classification, would be regarded as primary lymphosarcomas. Most of these were in the liver and on one occasion he saw one that actually caused occlusion of the portal vessels. He had had another case in which he had confused two very large urinary calculi with a carcinoma of the bladder, on clinical grounds. If an X-ray was not available the differentiation of these two conditions was not easy.

Dr. Bennett then said that he was interested to see the high percentage of dogs in Glasgow showing evidence of leptospirosis, a condition which did not appear to be common in the Caribbean.

Breakdown following distemper vaccination was an occasional problem in all practices, and one that it was very difficult to explain satisfactorily to clients.

He was interested in Professor Weipers's comments on Aujeszky's disease. The question had been raised earlier in the day about the treatment of the dog which was always biting himself. However at the time when he saw these cases they were usually chronic and were not followed by paralysis as is usual in Aujeszky's disease.

In conclusion, Dr. Bennett said that he had had surprisingly good results in the treatment of virus diseases in cats with penicillin and vitamin B_{12}. He had found a remarkable improvement within 72 hours of treatment and most cats were quite recovered within 5 days.

The Chairman thanked Dr. Bennett for his remarks and said that he had had similar results in treating virus diseases in cats in Jamaica. He felt that the penicillin kept down secondary infections and gave the cat a chance to overcome the virus. He preferred using vitamin B complex to vitamin B_{12} alone.

were re-inflated to two-thirds of their mould volume by the injection of the appropriate volume of water into the water system. This incomplete filling enabled the balloons to follow a fall as well as a rise of pressure.

All instrumentation and recordings were made under posterior epidural anaesthesia in cows, and under general anaesthesia (using cyclopropane or sodium pentobarbitone) in sheep. After inserting the instruments a period of 45 minutes was allowed to elapse before any drugs were given. Observations were made in both pregnant and non-pregnant cows, and in pregnant sheep. No difficulty was found in catheterising pregnant animals provided that an ordinary clinical catheter was first passed through the cervical seal of mucus. All drugs were given through an indwelling venous cannula of polythene. This enabled intravenous injections to be made repeatedly, in accurate doses and at predetermined intervals, without disturbing the animal.

Terminology

Throughout this account the terms " uterus " and " uterine " will be used only in reference to the whole organ including the anatomical cervix uteri. The terms " cervix " and " corpus," and derived adjectives, will be used to identify the 2 parts of the uterus which contain the balloons.

Results

Spontaneous Activity

Contractions of corpus and cervix were recorded as intermittent rises of pressure in the balloons. Between contractions the pressure returned to a base line slightly above atmospheric pressure. The pattern of the contractions so recorded from the cervix had the characteristics of smooth muscle and thus bore a general similarity to the pattern recorded simultaneously from the corpus. However, the 2 records varied independently in respect of magnitude of pressure, direction of pressure change, and in the frequency, duration, and rhythm of contractions—both spontaneous and induced. Moreover, the relationship of the 2 types of activity varied inconstantly during individual experiments. Short periods occurred when 1 zone was completely quiescent whilst the other was active. Although a study of spontaneous activity was not our chief interest, these observations are valuable in establishing that our cervical recordings were mechanically and physiologically independent of those made from the corpus (Fig. 1).

Activity Induced by Drugs

Most of the drugs used in the present experiments fell into the 3 groups—sympathomimetic amines (including adrenaline), posterior pituitary extracts, and salts of ergometrine. With these and with other drugs. differences were recognised as between cervical and corpus responses, substantiating the view that the contractions of the two structures may be independent.

FIG. 1.—Independence of spontaneous contractions recorded on a Kymograph simultaneously from the cervix (below) and the corpus (above) in a non-pregnant cow. The amplitude and rhythm of contraction are most regular in the corpus and irregular in the cervix.

Qualitative Differences

After administration of drugs the same independence of cervix from corpus was seen in the detailed pattern of contraction as was seen during spontaneous contractions. This was especially so after administration of sympathomimetic amines, differences in the magnitude and rhythm of contractions, and in the duration of drug action being frequently recorded. Fig. 2 illustrates such dissimilarity in the 2 responses to the administration of a compound isomeric with adrenaline (Cobefrine).

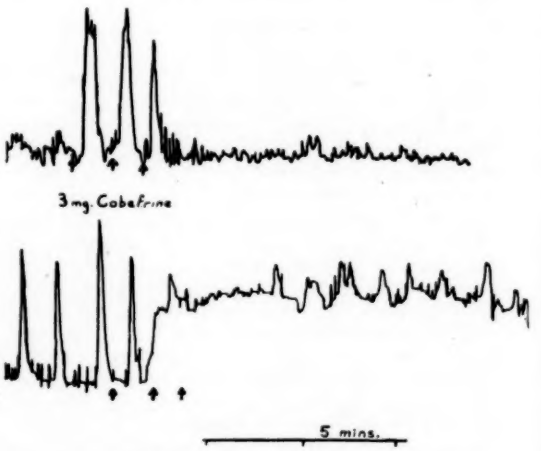

FIG. 2.—Cobefrine, an isomer of adrenaline, given in three successive doses of 1 mg. to a cow, produces only transitory contractions of the corpus (above) but long-lasting spasm of the cervix (below).

Probably the most striking difference between the responses of the cervix and corpus to drugs is that of reciprocal polarity, *i.e.* relaxation of one structure coincident with contraction of the other. One such recording is shown in Fig. 3, in which oxytocin is seen to elicit contraction of corpus coincident with relaxation of the cervix—a combination which presumably favours expulsion of uterine contents.

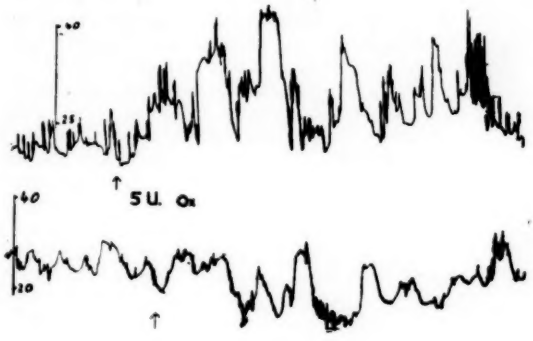

FIG. 3.—In a non-pregnant cow 5 U. oxytocin intravenously stimulates corpus contractions (above) but inhibits those of cervix (below).

Reciprocal polarity in reverse combination, *i.e.* favouring retention, was also recorded, as illustrated in Fig. 4.

These patterns of reciprocal responses were repeatedly seen with adrenaline and its close homologues, with both the recognised fraction of posterior pituitary extract (oxytocin and vasopressin) and very occasionally with ergometrine. In all such experiments in which relaxation was recorded from cervix

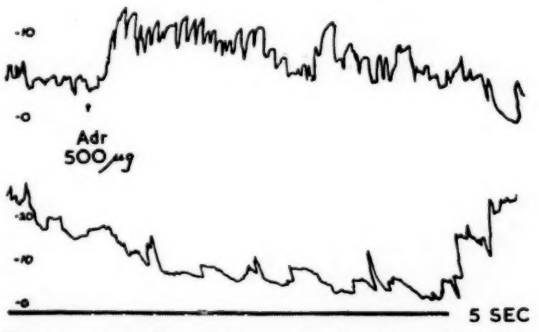

FIG. 4.—Adrenaline elicits contraction of cervix (upper tracing) coincident with relaxation of corpus (lower tracing) in a cow in advanced pregnancy.

or from corpus, the structure concerned was shown capable of contraction in response to other drugs. Fig. 5 illustrates such an experimental sequence in a pregnant sheep, vasopressin eliciting corpus contraction accompanied by modest cervical relaxation, whereas with adrenaline the cervix contracts and is in fact more reactive to this drug than is the corpus.

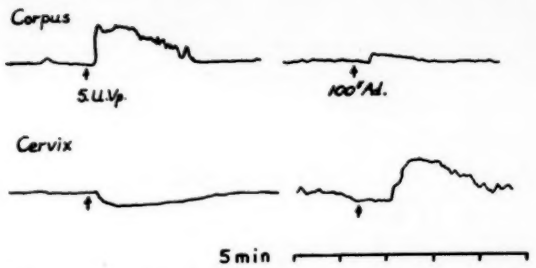

FIG. 5.—In a pregnant sheep vasopressin elicits contraction of corpus and relaxation of the cervix whereas adrenaline stimulates both structures.

Quantitative Differences

A remarkable characteristic of the action of ergometrine is an apparent preferential stimulation of the cervix. Responses to ergometrine were studied in 13 experiments and in 5 of these contraction of the cervix occurred without response of the corpus; in 6 experiments the cervix contracted much more powerfully than the corpus; and in only 2 experiments were cervix and corpus stimulated to a similar extent. In no case did ergometrine elicit greater contraction of corpus than cervix.

With oxytocin differences in the reactivity of the 2 structures were also recognised, but with this drug corpus dominance occurred more often, *i.e.* the corpus responded without the cervix, or corpus response was strong and that of cervix weak. In 11 experiments both oxytocin and ergometrine were given so that the relative reactivity of the 2 structures to the 2 drugs could be compared in the same animal. This comparison is given in the table

TABLE

THE RELATIVE REACTIVITY OF CORPUS AND CERVIX UTERI TO ERGOMETRINE AND OXYTOCIN

Animal	Ergometrine		Oxytocin	
	Dose in mg.	Dominant structure*	Dose in mg.	Dominant structure*
Sheep 1	0·5	Cervix	1·0	not different
Sheep 2	0·5	Cervix	4·0	Corpus
Sheep 3	0·6	Cervix	1·0	Corpus
Sheep 4	1·0	Cervix	0·2	Corpus
Sheep 5	1·0	Cervix	1·0	Corpus
Sheep 6	1·0	Cervix	1·0	Corpus
			4·0	Corpus
Cow 1	2·5	Cervix	3·0	Corpus
Cow 2	4·5	Cervix	10·0	Corpus
Cow 3	2·0	Cervix	4·0	not different
Cow 4	4·0	Cervix	2·0	not different
Cow 5	3·5	not different	3·0	not different

* The cervix is described as the dominant structure when it contracts in the absence of corpus contraction or when it contracts with much greater force than corpus. Dominance of the corpus is the reverse of this.

which substantiates the findings of Schild *et al.* (1951) that ergometrine preferentially stimulates the cervix of the pregnant woman.

It is probable that these differences in reactivity as between cervix and corpus are basically differences of sensitivity. This is illustrated by Fig. 6b which

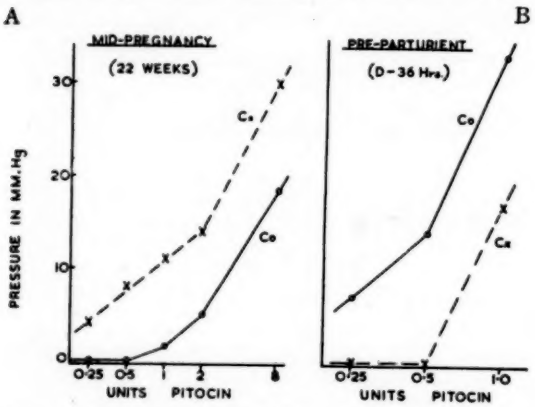

FIG. 6.—Simultaneously recorded responses of corpus (Co) and cervix (Cx) are plotted against dose of oxytocin ("Pitocin") at 2 stages of pregnancy in the cow. In the experiment during the 22nd week of pregnancy the cervical responses are consistently greater than those of the corpus, whilst in the experiment 36 hours before full-term delivery the corpus responses are the greater.

compares the magnitude of the responses of the 2 structures in a cow receiving an ascending series of doses of oxytocin. In this experiment, at all doses tested, the response of the corpus was much greater than that of the cervix, and at very low dosage, the corpus responded but the cervix did not, so that the corpus could be described as the more sensitive. It is probable that the differences seen with ergometrine have a similar basis; namely, that our doses were in the threshold range and were adequate to stimulate the cervix but inadequate to stimulate the corpus.

The relative magnitude of the response of corpus and cervix to oxytocin was found to vary with the sexual state of the animal. This has already been commented on (Fitzpatrick, 1956) and will be published in detail elsewhere, but one aspect is worthy of emphasis here. The combination of responses of cervix and corpus which results in corpus dominance is present shortly before parturition; however, the reverse combination, that of cervical dominance, is seen if oxytocin is given at mid-pregnancy (Fig. 6a). This apparently purposeful variation in the combined response of the 2 parts of the uterus to oxytocin supports the hypotheses that oxytocin is a true hormone with a function in parturition, and that for specified cases of dystocia, oxytocin, in cautious doses, represents logical therapy.

Discussion

These results are interesting from 2 points of view; firstly they extend the principle of independent cervical contractility to species other than man and laboratory animals; secondly they may ultimately have application to problems associated with cervical dystocia in domesticated animals (*e.g.* "ring womb" of sheep).

The objective recording of cervical contractions in the ruminant represents more than mere extension of similar results obtained in man and laboratory animals. In relation to the considerable length of the cervix in sheep and cows, the diameter of the balloons used is small. In consequence of this, and by virtue of the presence of the normal annular collagenous cervical rings, which act as baffles, a cervical balloon placed mid-way along the cervical canal is effectively isolated from intracorporeal and intravaginal pressures. This mechanical independence cannot be established so reliably for corresponding techniques using intracervical balloons in rabbits, cats, and guinea-pigs since in these animals even the small balloons used (Adler *et al.*, 1944; Schofield, 1952) must be considered large in relation to the length of the cervical canal. In man the length of the cervical canal is approximately 2 cm. so that the use of cervical balloons of 1 cm. diameter has only a small safety margin (Schild *et al.*, 1951) and indeed such balloons may be impossible to use if the effective length of the canal is shortened by minor lacerations as occurs not infrequently. The fact that independence of cervix and corpus can be recorded in the ruminant easily, frequently, and consistently, very greatly strengthens acceptance of the earlier observations, made in other species, and which have been interpreted as indicating that "the cervix is something more than the mere end of the uterus" (Bell, 1952).

The demonstration of independent cervical contractility raises the possibility that the cervix may take an active instead of merely a passive part, in the process of parturition. A small constrictor force at the neck of any balloon-like structure (such as the uterus) can obliterate the lumen of the neck of the balloon although the tension in the wall of the neck portion is very much less than that in the wall of the balloon itself (Nixon & Smyth, 1957). A small deposition of mainly circular smooth muscle fibres in the cervical wall has a mechanical advantage such that it could significantly modify the effect of the relatively massive contractions of the parturient corpus. Hughesdon (1952) has published evidence indicating that such a discrete localisation of smooth muscle *at the internal os* does interfere with normal parturition in man. Underactivity of this compressor is associated with precipitate labour. Overactivity (spasm) of cervical muscle leads to prolonged labour not merely by directly denying the early advance of the membranes, but also by initiating an impaction of the cervix, in which the unfolding of the canal proceeds from the vaginal end instead of the uterine end, the longitudinal muscle of the corpus with its insertions into the wall of the cervix having greater dilatory effect at the external os where this sphincter-like resistance is absent.

The factors influencing cervical and corpus activity are apparently numerous and require further study before we will be able to modify this activity to clinical advantage. Initially it was hoped that one or more drugs would specifically stimulate uterine muscle and inhibit cervical muscle—with obvious application in obstetrics. Although this reciprocal

pattern of response was recorded in some experiments the evidence does not indicate that any one drug produces it consistently.

Drugs which elicit corpus contraction without cervical contraction would also be useful in treating cervical dystocia. Such a pattern of responses was also recognised in our experiments. This type of independence is more acceptable as a basis for future research since it implies only quantitative differences of sensitivity rather than qualitative difference in mode of action of drugs as between cervical and corpus muscle. In this respect oxytocin and ergometrine form an interesting contrast since ergometrine seems to have a greater affinity for the cervix, whereas oxytocin, in the same animals, has this for the body of the uterus. This relationship for these two drugs was also found by Schild *et al.* (1951) in pregnant women, and it suggests that oxytocin is the more desirable drug with which to simulate labour.

The concept of different sensitivities of cervix and corpus emphasises the need for more discriminating use of drugs like oxytocin. Although in the preparturient cow the cervix appears insensitive to (low) doses of oxytocin which effectively stimulate the corpus, the cervix does respond to higher doses, and with very high doses a stage will be reached when cervical contraction must interfere with uterine emptying. The doses used in the above experiments are low in comparison with doses conventionally recommended for clinical use. The latter appear to the author to be too high and it is appropriate to recall Newton's (1937) comment that "Mere contraction of the uterus is too primitive a process to be dignified with the name of parturition." It is also worth noting a current trend in human obstetrics towards administration of oxytocin by very dilute intravenous drips (Theobald *et al.*, 1948, 1956). The dangers of inco-ordinate uterine action following single high doses of posterior pituitary extract are no less real in domestic animals than in man. In pluriparous species co-ordinated uterine action is especially important for the birth of successive foetuses, and the production of inco-ordinated contraction with high doses of oxytocin may well account for the poor reputation given by some clinicians to oxytocin (and pituitrine) in the dog.

Acknowledgment.—I am grateful to H. O. Schild of University College, London, for his help in interpreting the results.

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On the Overwintering on Pasture of *Dictyocaulus viviparus* Larvae in Northern Ireland

BY

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AND

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Introduction

IN recent years varying views have been advanced regarding the persistence of bovine lungworm larvae on pasture in Great Britain. The result of enquiries into outbreaks of parasitic bronchitis in Southern England suggested to Taylor (1951) that disease-producing infestations remained alive on pasture for nearly a year. In 1952, Soliman, working in the same area, failed to infect susceptible animals by grazing them on pasture which had been naturally infected 2 months previously. Michel and Parfitt (1955) and Michel and Shand (1955) observed a survival period, in the autumn and early winter, of 4 months and they expressed the opinion that overwintering of the larvae seemed unlikely to occur.

The Glasgow workers (Jarrett *et al.*, 1954, 1955) have shown that in the West of Scotland the larvae may survive on pasture for a year. They measured the duration of the larval survival by grazing susceptible calves on the pasture and recovering larvae from them.

In Northern Ireland there has been, for many years, a body of opinion to the effect that hoose larvae could overwinter on pasture. This has not been subjected to critical enquiry until recently.

Observations

The purpose of the present communication is to report the result of independent observations made by us on pastures 25 miles apart in Northern Ireland. That each of us was unaware of the other's work until the results were exchanged may add to the interest of these remarks.

At Hillsborough an outbreak of parasitic bronchitis occurred in young cattle in the first fortnight of

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August, 1956. There were no deaths. The cattle were removed from the field on August 14th, 1956.

For 2 days before the end of August the field was grazed by older stock. Subsequently it remained unstocked until the observations referred to here were completed. At intervals from the end of October herbage samples were taken and examined for Dictyocaulus larvae. On January 30th, 1957, 30 larvae per lb. of herbage were counted. Sampling ceased on April 5th, 1957, when 14 Dictyocaulus larvae per lb. of herbage were recorded.

The other pasture, at Moy, had grazed 4 cattle which all developed a fog-fever-like syndrome in August, 1956. One animal died and the other 3 slowly recovered. At the onset of clinical signs the cattle were removed from the pasture which was left unoccupied. This pasture was also sampled during the winter, a concentration of 45 larvae per lb. of herbage being reached on January 29th, 1957, and on April 8th, 1957, it showed a concentration of 12 larvae per lb. of herbage (the larvae being tightly coiled and non-granular).

The Weybridge methods of herbage sampling and examination for larvae were employed (Taylor, 1939; Parfitt, 1955; Michel and Parfitt, 1955).

Discussion

The concentration of larvae on the pastures, in the absence of a continuing source of contamination, appears to be high. Not only must the conditions have been adequate for the translation of non-infective larvae in the faeces to infective larvae on the herbage, it must also have been suitable for their survival.

Meteorological data recorded at Hillsborough, about 1 mile from the field under study, and similar records made some 6 miles from the field at Moy, were made available to us. Some of the Hillsborough data are shown in Table I. The figures are monthly averages of the daily readings.

TABLE I

Month	Grass Min. temp. °F.	Rel. humidity. %	Rainfall inches	Ground frost. Days
August 1956	43	87	5·81	2
September	45	92	3·46	1
October	38	89	2·68	3
November	36	90	1·29	8
December	36	93	4·8	3
January 1957	30	94	4·25	15
February	30	91	2·04	11
March	39	89	2·76	2

In the Moy (Armagh) district the grass minimum temperatures were higher, relative humidity was slightly lower, less rain fell and there were fewer days of ground frost (below 30.4°F.). Indeed, ground frost was not recorded until the end of October. It seems to us that the weather conditions during the past winter have provided a favourable microclimate in the herbage for the persistence of the existing larval population. The relative humidity and rainfall figures indicate how little danger there was of destruction of the larvae by desiccation.

Although this report has referred to the overwintering of *D. viviparus* larvae on pasture we acknowledge that this is not the only means whereby the infection is kept alive from year to year. Infected cattle are another source and, like others, we have seen adult *D. viviparus* in the bronchi of yearling cattle when *post-mortem* examinations have been conducted in the early months of the year.

Summary

The persistence on pastures in Northern Ireland of *D. viviparus* larvae for a period of 7 months over the winter of 1956-7, in the absence of a fresh source of contamination, is recorded. Meteorological data for the district indicate the relatively mild, damp nature of the winter months.

Acknowledgments.—To Professor H. G. Lamont for advice. To the Director, The Observatory, Armagh, and to Mr. Bell of the Agricultural Research Institute, Hillsborough, who provided the meteorological data.

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LABORATORY ANIMALS BUREAU CONGRESS

The 10th Laboratory Animals Bureau Congress was held at the Royal (Dick) School of Veterinary Studies on April 4th and 5th. It was attended by about 240 technicians from all parts of the country. Seven papers were presented at the morning sessions and the afternoons were devoted to visits to laboratories and to the Zoological Park.

The 1958 Congress will be held at the University of Birmingham on Monday and Tuesday, March 24th and 25th, 1958.

TB. ERADICATION IN WALES

Speaking at the opening of the new Attested Section of Newport Market, Monmouthshire, on July 10th, Earl St. Aldwyn, T.D., Joint Parliamentary Secretary to the Ministry of Agriculture, said: "Here in Monmouthshire 69 per cent. of the total cattle population had become attested by March 31st last, and by the end of June this had risen to 74 per cent. Up to the end of May, only 13.8 per cent. of the cattle of Monmouthshire reacted to their first tuberculin test. Even more heartening is that just over half the herds proved to be completely clean at the first test. Wales and Monmouthshire have made splendid progress with eradication since the present scheme began in 1950 and, if all goes well, will be one large Attested Area by the end of 1959."

News and Comment

THE ROYAL GARDEN PARTY

Among the guests at the Royal Garden Party, held at Buckingham Palace last Thursday, were the President of the B.V.A., Mr. E. R. Callender, with Mrs. Callender, the Senior Vice-President, Mr. E. Wilkinson, with Mrs. Wilkinson, and the Chief Veterinary Officer, Mr. J. N. Ritchie, with Mrs. Ritchie.

THE NEWMAN POULTRY AWARD

The secretary of the Newman Trust International Poultry Award announces that the 1957 Award will be made to Dr. Henry E. Adler, B.S., D.V.M., PH.D., of the U.S.A. Dr. H. E. Adler works in the Department of Poultry Pathology, School of Veterinary Medicine, University of California.

The Award is made to Dr. Adler for his outstanding work in poultry pathology as published during 1956.

NEW MEMBERS OF THE R.C.V.S.

The under-mentioned ladies and gentlemen were admitted to membership of the Royal College of Veterinary Surgeons on the dates shown:—

AITKEN, Ian Douglas, Sunnyside Cottages, Bath Street, Nairn. July 6th, 1957. B.V.M.S. (GLAS.); ANDREW, Alexander Eric, Endfield, Station Road, Monkton, Ayrshire. July 6th, 1957. B.V.M.S. (GLAS.); ASHWORTH, Keith Thomas, Links View, Pleasington, Nr. Blackburn, Lancs. July 5th, 1957. B.V.SC. (LIV.).

BAKER, Kenneth Percy, 123, Upperton Road, Plaistow, London, E.13. July 6th, 1957, London; BARDEN, Patrick John, 53, Northbourne Road, Eastbourne, Sussex. July 10th, 1957. B.V.SC. (BRISTOL); BARR, Andrew Gordon, 3, Allenby Road, St. Annes on Sea, Lancs. July 6th, 1957. B.V.M.S. (GLAS.); BARRETT, Stanley, 23, Smithfield Avenue, Trowell, Notts. July 5th, 1957. B.V.SC. (LIV.); BATTEN, Adrian Thomas Henry, 34, Queens Road, Salisbury, Wilts. July 10th, 1957. B.V.SC. (LIV.); BESWICK, Walter, 35, South Street, Draycott, Derbyshire. July 6th, 1957. B.V.M.S. (GLAS.); BOARDMAN, Anthony Charles, Bebery Cottage, Cobley Hill, Nr. Alvechurch, Worcs. July 6th, 1957. B.V.M.S. (GLAS.); BOLGER, Keith, 804, Leeds Road, Bradford, 3, Yorks. July 5th, 1957. B.V.SC. (LIV.); BRADLEY, Anthony Terence, Chapel Farm, Oakham, Rutland. July 17th, 1957. B.V.M.S (EDIN.); BRADLEY, John Edwin, Downholme, Lowes Barn, Durham. July 17th, 1957. B.V.M.S. (EDIN.); BRIDGES, Gordon Dennis, Siding House, Bryncethin, Nr. Bridgend, Glam. July 6th, 1957. B.V.M.S. (GLAS.); BRIGGS, Heather (Miss), 65, Storths Road, Birkby, Huddersfield, Yorks. July 6th, 1957. B.V.M.S. (GLAS.); BROWN, Kenneth, 5, Macdowall Road, Edinburgh, 9. July 17th, 1957. B.V.M.S. (EDIN.); BRYCE, Edward Patrick, 16, King Street, Clydebank, Glasgow. July 6th, 1957. B.V.M.S. (GLAS.); BUTLER, Clifford Leon, Manor Farm, Bloxham, Banbury, Oxon. July 5th, 1957. B.V.SC. (LIV.); BYGRAVE, Andrew Charles, 3, Bedford Road, Letchworth, Herts. July 5th, 1957. B.V.SC. (LIV.); BYRNE, Cornelius John, 3, Tivoli Terrace, Tramore, Co. Waterford, Eire. July 2nd, 1957, Dublin; BYRNE, Geoffrey Arthur, Treringey, Crantock, Nr. Newquay, Cornwall. July 6th, 1957, London.

CAMERON, James, 86, Tanfield Street, Springboig, Glasgow, E.2. July 6th, 1957. B.V.M.S. (GLAS.); CARLES, Alan Blake, P.O. Timau, Kenya. June 29th, 1957. B.A., VET. M.B. (CAMB.); CHAUDHARI, Abdul Qayyum, B.V.SC. (PUNJAB), Village and P.O. Chak Patmarian No. 296 GB., *via* Toha Tek Singh, Distt. Lyallpur, West Pakistan. July 6th, 1957, London; CHENG, Tong Fatt, 31, Coleman Street, Singapore. July 6th, 1957. B.V.M.S. (GLAS.); CHINN, Warwick Temple, 197, Penhill Drive, Swindon, Wilts. July 10th, 1957. B.V.SC. (BRISTOL); CHOY, Thoong Loke, B.V.SC. (AGRA), 80a, Hale Road, Kuala Lumpur, Malaya. July 2nd, 1957. Bristol; CLARKE, John Patrick, Sea fin, Baillieboro, Co. Cavan, Eire. July 2nd, 1957, Dublin; CLAYTON, Nigel Allen, 7, Station Road, Long Sutton, Spalding, Lincs. July 17th, 1957. B.V.M.S. (EDIN.); COONEY, Joseph Fechin, Carpenterstown House, Castlepollard, Co. Westmeath, Eire. July 2nd, 1957, Dublin; CRAWFORD, Samuel Brian, Thompson's Bridge, Enniskillen, Co. Fermanagh. July 17th, 1957. B.V.M.S. (EDIN.); CROWE, John Francis, Moguehall, Cavan, Co. Cavan, Eire. July 2nd, 1957, Dublin; CURRER-BRIGGS, Richard Anthony, Pull Wyke, Ambleside, Westmorland. June 29th, 1957. B.A., VET. M.B. (CAMB.).

DALY, Edward Vincent, Collinstown, Co. Westmeath, Eire. July 2nd, 1957, Dublin; DATT, Subhan Chander, B.V.SC. (PUNJAB), 50, East Canal Road, Dehra Dun, U.P., India. July 2nd, 1957, Bristol; DAVIES, Edward Bryan, 71, St. John's Road, Wrexham, Denbighshire. July 5th, 1957. B.V.SC. (LIV.); DAVISON, Roy Singleton, Albion House, Oxford Street, Newbury, Berks. July 6th, 1957, London; DAWSON, John Robert Brotherhood, Old Tiles, Twogates, Tamworth, Staffs. July 17th, 1957. B.V.M.S. (EDIN.); DOHERTY, Patrick Laurence, Castlequarter, Inch, Co. Donegal, Eire. July 2nd, 1957, Dublin; DUNDAS, John, 23, Ashburn Gardens, Milngavie, Glasgow. July 6th, 1957. B.V.M.S. (GLAS.)

ELLIS, George Henry Charles, Bailie Leaze, Sturminster Marshall, Wimborne, Dorset. July 10th, 1957. B.V.SC. (BRISTOL.); EWBANK, Roger, 16, Harboro Road, Sale, Cheshire. July 5th, 1957. B.V.SC. (LIV.).

FARDELL, Molly Doreen (Miss), 174, Berrow Road, Burnham on Sea, Somerset. July 10th, 1957. B.V.SC. (BRISTOL); FRASER, Charles Edward Ovid, No. 7 Farm, Berbice, British Guiana. July 5th, 1957. B.V.SC. (LIV.).

GALE, John Brian, 191, Dryden Road, Gateshead, 9, Co. Durham. July 10th, 1957. B.V.SC. (BRISTOL); GEE, Brian Denham, 63, Derngate, Northampton. July 1st, 1957, Edinburgh; GIBNEY, Edward Euda, Oldcastle, Co. Meath, Eire. July 2nd, 1957, Dublin; GRAY, Brian, 30, Town Street, Yeadon, Nr. Leeds, Yorks. July 1st, 1957, Edinburgh; GREEN, Bryan John, The Verlands, Upton Lane, Barnwood, Gloucester. July 10th, 1957. B.V.SC. (BRISTOL); GREEN, John Michael, 33, Main Street, Farnhill, Kildwick, Keighley, Yorks. July 10th, 1957. B.V.SC. (BRISTOL).

HARRISON, Frederick Alexander, 45, Turves Road, Cheadle Hulme, Cheshire. July 5th, 1957. B.V.SC. (LIV.); HART, James Thomas Mitchell, 47a, Union Street, Greenock, Renfrewshire. July 6th, 1957. B.V.M.S. (GLAS.); HEARNE, Roy Burns, 5, Court Farm Cottages, Upper Halling, Nr. Rochester, Kent. July 10th, 1957. B.V.SC. (BRISTOL); HEIN, Helen Elisabeth (Miss), Westmead, Outwood Road, South Nutfield, Surrey. July 6th, 1957. B.V.M.S. (GLAS.); HILDER, Edward Frank, Brunswick House, Mattersey, Nr. Doncaster, Yorks. July 5th, 1957. B.V.SC. (LIV.); HOBSON, Geoffrey Joseph, 51, Dobcraft Avenue, Sheffield, 7, Yorks. July 5th, 1957. B.V.SC. (LIV.); HOLMES, John Anthony Russell, 230, Kettering Road, Northampton. July 5th, 1957. B.V.SC. (LIV.); HORLOCK, John, 40, Woodlodge Lane, West Wickham, Kent. July 10th, 1957. B.V.SC. (BRISTOL); HOWELL, John McCormack, 10, Grosvenor Crescent, Hannah Street, Tunstall, Stoke on Trent, Staffs. July 5th, 1957. B.V.SC. (LIV.); HUGHES, Ian Bradshaw, 277, Woodborough Road, Nottingham. July 5th, 1957. B.V.SC. (LIV.); HUGHES, John Roger, 216, Osmaston Road, Derby. July 6th, 1957, London; HUMPHREYS, Medwyn, Tyddyn Adda, Gaerwen, Anglesey. July 1st, 1957, Edinburgh; HUSSAIN, Shabbir, B.V.SC. (PUNJAB.), c/o Syed Abdul Qadir Shah, Railway Road, Narowal, Distt. Sialkot, W. Pakistan. July 6th, 1957, London.

INGHAM, Brian, 145, Lockwood Scar, Newsome, Huddersfield, Yorks. July 17th, 1957. B.V.M.S. (EDIN.).

JEMSON, James David, 29, Hayes Road, Beckenham, Kent. June 29th, 1957. B.A., VET. M.B. (CAMB.); JENKINSON, Thomas Arnold, Marle Hill, Cabus, Garstang, Preston, Lancs. July 5th, 1957. B.V.SC. (LIV.); JOHNSON, David Ewart, 39, Sunnybank Road, Quinton, Birmingham, 32. July 1st, 1957, Edinburgh; JONES, Neville Anthony, Plas-Bach, Kidwelly, Carms. July 10th, 1957. B.V.SC. (BRISTOL); JONES, Robert Francis Crawford, 5, Windsor Hill, Newry, Co. Down. July 2nd, 1957, Dublin; JONES, William Ashwynne, 34, Bedford Place, London, W.C.1. July 6th, 1957, London; JURY, Olwen (Miss), Marsh Platt, Howley, Nr. Huddersfield, Yorks. July 17th, 1957. B.V.M.S. (EDIN.).

KEANE, Michael John, 10, Orchardstown Park, Templeogue, Dublin. July 2nd, 1957, Dublin; KELLY, Donald Francis, 154, Wood Street, Chelmsford, Essex. July 10th, 1957. B.V.SC. (BRISTOL); KILROY, Charles Stuart Maxwell, Moat View, Oldcastle, Co. Meath, Eire. July 2nd, 1957, Dublin; KING, John Murray, 222, Dale Road, Sponnon, Derbyshire. June 29th, 1957. B.A., VET. M.B. (CAMB.); KNIFTON, Alan, 180, Bardon Road, Coalville, Leics. July 5th, 1957. B.V.SC. (LIV.).

LANCASTER, Raymond, 46, St. Thomas Street, Brampton, Chesterfield, Derbyshire. July 5th, 1957. B.V.SC. (LIV.); LAW, James Brown, Heads Farm, Glassford, Strathaven, Lanarks. July 6th, 1957. B.V.M.S. (GLAS.); LEAHY, Patricia Nicolson (Miss), 37, Danes Drive, Scotstoun, Glasgow. July 6th, 1957. B.V.M.S. (GLAS.); LEWIS, Lynn Morris, Fronheulog, Penparcau, Aberystwyth, Cards. July 10th, 1957. B.V.SC. (BRISTOL); LIONNET, Serge Joseph Luc, Avenue Surcouf, Quatre-Bornes, Mauritius. July 6th, 1957. B.V.M.S. (GLAS.); LITTLETON, Colin Edward John, 9, Little Stoke Road, Stoke Bishop, Bristol, 9. July 10th, 1957. B.V.SC. (BRISTOL).

McCARTHY, William Anthony, Ballyduff, Dungarvan, Co. Waterford, Eire. July 2nd, 1957, Dublin; McCASKILL, Hugh, 22, Mardale Crescent, Edinburgh, 10. July 17th, 1957. B.V.M.S. (EDIN.); McFARLANE, Robert Wallace, Tom an droighne, Aberfeldy, Perthshire. July 6th, 1957. B.V.M.S. (GLAS.); McGILLIGAN, Connor Arthur, 2, Pembroke Park, Ballsbridge, Dublin. July 2nd, 1957, Dublin; MACKAY, John William, Trantlebeg, Hallodale, Forsinard, Sutherlandshire. July 6th, 1957. B.V.M.S. (GLAS.); McLAUGHLIN, David, Carnlelis, Mosside, Co. Antrim. July 2nd, 1957, Dublin; McMARTIN, Duncan Alexander, Camusericht Lodge, Rannoch Station, Perthshire. July 17th, 1957. B.V.M.S. (EDIN.); MACPHERSON, Alasdair Macdonald, 1, Torvaig, Portree, Isle of Skye. July 6th, 1957. B.V.M.S. (GLAS.); MACPHERSON, Ian, 19, Parkside Crescent, Meanwood, Leeds, 6, Yorks. July 10th, 1957. B.V.SC. (BRISTOL); MALKINSON, Mertyn Hyman, 43, Eversley Street, Liverpool, 8. July 5th, 1957. B.V.SC. (LIV.); MALONEY, Patrick, Castletownroche, Mallow, Co. Cork, Eire. July 2nd, 1957, Dublin; MANSFIELD, Michael Peter, Lowhill, Ballinakill, Co. Leix, Eire. July 2nd, 1957, Dublin; MARTIN, Noel Nat. 499, Harrogate Road, Alwoodley, Leeds, 17, Yorks. July 10th, 1957. B.V.SC. (BRISTOL); MARTIN, William Howard, Clane House, Waringstown, Lurgan, Co. Armagh. July 2nd, 1957, Dublin; MASON, Eileen Catherine (Miss), 24, Cavendish Road, Quinton, Birmingham, 32. July 17th, 1957. B.V.M.S. (EDIN.); MAXWELL, Michael Denis, Windle Wood, Vyner Road North, Bidston, Birkenhead, Ches. July 17th, 1957. B.V.M.S. (EDIN.); MAYER-GROSS, Henry, 86, Gough Road, Edgbaston, Birmingham, 15. July 6th, 1957. B.V.M.S. (GLAS.); MENEAR, Horace Cecil, 10, Newport Square, Launceston, Cornwall. July 5th, 1957. B.V.SC. (LIV.); MORROW, William Terence, Hill House, Ballyhanwood, Knock, Belfast. July 17th, 1957. B.V.M.S. (EDIN.); MULVEY, William John, Drumgilra, Farnought P.O., Carrick on Shannon, Co. Leitrim, Eire. July 2nd, 1957, Dublin; MURGATROYD, Alfred Edward, 6, Corporation Street, Morley, W. Yorks. July 5th, 1957. B.V.SC. (LIV.)

NYUN, Mya, B.SC. (RANGOON), Veterinary Dept., Rangoon, Burma. July 1st, 1957, Edinburgh.

OAKLEY, Geoffrey Arnall, 38, Dunmail Drive, Carlisle, Cumberland. July 6th, 1957, London; O'CONNOR, Sean Padraid, 334, Harold Cross Road, Dublin. July 2nd, 1957, Dublin.

PEACOCK, Michael Rigby. 52, Ravensdale Road, Darlington, Co. Durham. July 10th, 1957. B.V.SC. (BRIS.); PHILLIPS, Douglas Hugh, 11, Aberdeen Road, Redland, Bristol, 6. July 10th, 1957. B.V.SC. (BRISTOL); PICKARD, Barbara (Miss), The Cottage, Backwood Farm, Neston, Wirral, Cheshire. July 5th, 1957. B.V.SC. (LIV.); PICKERING, Eric Cruddas, 7, Castle Street, Chester. July 6th, 1957. B.V.M.S. (GLAS.); PRING, John Walford, 18, Station Road, Desford, Leics. July 6th, 1957. B.V.M.S. (GLAS.); PUGH, David Michael, 68, Walter Road, Swansea, Glam. July 10th, 1957. B.V.SC. (BRISTOL).

REES, David Emrys, Gilwern, Plwmp, Llandyssul, Cards. July 17th, 1957. B.V.M.S. (EDIN.); REX, Michael Albert Edward, 42, Grove Road, Halton, Leeds, 15, Yorks. June 29th, 1957. B.A., VET. M.B. (CAMB.); RICKETTS, John Donald, Clanna Cottage, Swineshead, Beds. July 17th, 1957. B.V.M.S. (EDIN.); RISPIN, Kevin, Grange, Bohermeen, Navan, Co. Meath, Eire. July 2nd, 1957, Dublin; ROBERTSHAW, David, 32, Thorneyfields Lane, Stafford. July 6th, 1957. B.V.M.S. (GLAS.); ROSS, David Bailey, Martinhoe, East End Way, Pinner Middx. June 29th, 1957. B.A., VET. M.B. (CAMB.).

SAVVIDES, John Stylinos, c/o Veterinary Offices, Nicosia, Cyprus. July 6th, 1957, London; SEVERS, Pamela (Miss), The Poplars, Beamish, Stanley, Co. Durham. July 6th, 1957. B.V.M.S. (GLAS.); SEVERS, Patricia (Miss), The Poplars, Beamish, Stanley, Co. Durham. July 6th, 1957. B.V.M.S. (GLAS.); SEWELL, Major Morley Hodkin, 7, Stumperlowe Avenue, Sheffield, 10, Yorks. June 29th, 1957 B.A., VET. M.B. (CAMB.); SMYTH, Daniel Joseph, 27, Annesley Bridge Road, Fairview, Dublin. July 2nd, 1957, Dublin; Smyth, Laurence John Francis, Earlspark, Loughrea, Co. Galway, Eire. July 2nd, 1957, Dublin; STEWART, Sybil Josephine (Miss), c/o Lloyds Bank, Ltd., Lymington, Hants. July 6th, 1957. B.V.M.S. (GLAS.); STOCKS, Barry Marshall, 169a, Bedford Hill, Balham, London, S.W.12. July 6th, 1957, London: STRETCH, Ian Leslie, The Rectory, Dollar, Clackmannanshire. July 1st, 1957. Edinburgh.

TANDY, John, 4, Cleveland Street, St. Helens, Lancs. July 5th, 1957. B.V.SC. (LIV.); THAKE, George, B.SC. (AGRIC.) (TORONTO), 292, Fleur de Lys Road, Birkirkara, Malta. G.C. July 5th, 1957. B.V.SC. (LIV.); TURNER, Charles Barrè, Tesog, Trearddur Bay, Anglesey. July 6th, 1957. B.V.M.S. (GLAS.); TYLER, John, Andrew House, Ashwood Drive, Gildersome, Leeds, Yorks. July 5th, 1957. B.V.SC. (LIV.).

WALKER, William Donald, 37, Monument Road, Ayr. July 1st, 1957, Edinburgh; WARDEN, David, 14, Hamlet Road, Hall, Green, Birmingham, 28. July 6th, 1957. B.V.M.S. (GLAS.); WATKINS, James, The Laurels, Saggart, Co. Dublin. July 2nd, 1957, Dublin; WHITELEY, Hedley, 15, Westborough Drive, Highroad Well, Halifax, Yorks. July 5th, 1957. B.V.SC. (LIV.); WILKINSON, John, 216, Osmaston Road, Derby. July 6th, 1957, London, WILLIAMSON, Geoffrey Alan, Old Bank, Appleby, Westmorland. July 5th, 1957. B.V.SC. (LIV.); WOOD, David James McGREGOR, 49, Rugby Street, Christchurch, New Zealand. July 17th, 1957. B.V.M.S. (EDIN.).

YORK, Anthony John, Tower House, Ballymun, Santry, Dublin. July 2nd. 1957, Dublin.

HILL FARMING RESEARCH

A new governing body for the Hill Farming Research Organisation has been appointed under the chairmanship of Professor A. B. Stewart, of the Department of Agriculture, University of Aberdeen. Among its members are Professor G. F. Boddie, B.SC., M.R.C.V.S., F.R.S.E., Captain J. B. Coutts, D.V.S.M., M.R.C.V.S., and Professor D. S. Hendrie of the West of Scotland Agricultural College. The Organisation was set up in April, 1954, to conduct and promote research on the problems of hill farming. The governing body, which will hold office for 3 years, is appointed by the Secretary of State after consultation with the Minister of Agriculture and the Agricultural Research Council.

PERSONAL

Births

NISBET.—On July 4th, 1957, to Joan, wife of Donald I. Nisbet, PH.D., B.SC., M.R.C.V.S., of 10, March Road, Edinburgh, a son.

SKINNER.—On July 19th, 1957, to Jessie, wife of David I. Skinner, M.R.C.V.S., of Moffat, Dumfriesshire, a son, Duncan Ross, brother for Catriona Mairi.

Professor Harold Burrow, Chairman of the Council of the Royal Society of Health, and Professor of Medicine, Royal Veterinary College, is to represent the Society at the 85th Annual Meeting of the American Public Health Association to be held at Cleveland, Ohio, in November. The B.V.A. will be represented by Dr. J. K. Walley.

MR. DAVID B. ANGUS

Messrs. S. J. Rennix and G. M. Dunbar write:—

The sudden death of David B. Angus at the early age of 41 came as a great shock to his many friends. David had been in partnership with us for over 11 years, and was highly esteemed by all with whom he came in contact, both professionally and socially. In him we have lost not only a conscientious colleague but a very dear friend.

To his mother and 2 brothers we extend our deepest sympathy.

THE ANIMAL TECHNICIANS ASSOCIATION

A training course for animal technicians has been arranged at Chelsea Polytechnic, Manresa Road, London, S.W.3, on Friady evenings from 6.30 to 8.30 p.m., commencing on Friday, October 4th. The course, which consists of 22 lecture/demonstrations, will prepare candidates for the associateship examination of the Animal Technicians Association, and is open to technicians with 1 year's experience in either laboratories or animal houses.

SHEEP SCAB

The Minister of Agriculture was asked in Parliament recently what advice his Department currently gives to county councils seeking guidance on the desirability of rescinding sheep dipping regulations since there have been no outbreaks of sheep scab in Great Britain for several years and which counties have notified him of intention to rescind or amend dipping regulations so that farmers will be free, if they prefer, to spray rather than dip their sheep.

In reply Mr. Godber said: "My right hon. Friend advises local authorities that sheep dipping regulations are a useful precaution against the re-establishment of sheep scab in this country. The Hampshire County Council is the only local authority that has recently notified my Department of its intention to revoke its regulations."

INTERNATIONAL CONFERENCE ON CATTLE IMPROVEMENT

An international conference was held in Luxembourg recently, at which 100 delegates from 14 countries were present. The progeny testing of beef cattle and the planning of cattle improvement under A.I. were discussed, and representatives from each country described how their beef supplies were being dealt with.

The British Society of Animal Production was represented by Messrs. H. R. Davidson, A. Jenkins, I. L. Mason, R. W. Pomery, Drs. H. Donald, J. Hammond and A. Stewart and Professor A. Robertson, M.R.C.V.S.

Mr. Mason, of the Institute of Animal Genetics, described the Institute's present investigations, and said they were planning tests in which groups of young bulls would be reared under identical conditions, so that any differences in growth or conformation must be due to breeding and not to differences in feeding or management. The best of these bulls would be sent to A.I. centres and progeny tested. The fact that conditions for progeny testing must be comparable with commercial conditions was emphasised in the ensuing discussion.

Professor Robertson stressed the advantages of A.I. in progeny testing, and suggested that on an average 3 out of every 4 bulls should be discarded when the results of progeny tests became known. He did not agree with the view that A.I. cattle were any more inbred than those in fashionable herds.

Professor Johanssen of Sweden agreed with him. He said that investigations in Sweden had shown that only 211 abnormalities had been recorded from 172,000 calvings, and only a few of these were hereditary. The commission studying genetics thought that an outstanding bull who had sired one bad calf should not necessarily be slaughtered but should be used with care.

MEDICAL PHOTOGRAPHY EXHIBITION

Ilford Limited of Ilford, Essex, are holding a Summer Exhibition at Tavistock House North, Tavistock Square, London, W.C.1, and until August 23rd this Exhibition, by the department of radiography and medical photography, is open Mondays to Fridays from 10 a.m. to 5 p.m.

Experienced radiographers and medical photographers are in attendance to help and advise the visitor. The various exhibits and demonstrations draw attention to some modern radiographic procedures in which the performance of the recording material is of importance. The first part of the Exhibition deals with micro- and macro-radiography and illustrates how radiographs of small subjects may be successfully enlarged using photographic film. The next section is designed to show how by variation of the physical factors (Kv, mA, exposure time) definition of soft or hard structures may best be attained using the same film.

The most recent advances in tomography are explained and it is possible to foresee the value in the veterinary field at some future date. Systems are exhibited whereby an X-ray may be obtained at a required depth in a patient without other deeper or more superficial structures masking the result.

Veterinary radiographs are on show and there are sections devoted to dentistry and the use of contrast media.

The section concerning filters and grids illustrates 2 important factors of use to the veterinary surgeon. Firstly, that each apparatus had individual characteristics, and that in radiography the physical factors which give the best results with one machine, are likely to be different for another machine. Secondly, it is the Kv which largely controls contrast in a radiograph, and that if it is too great, definition will be lost. A visit to this Exhibition by any veterinary surgeon who is his own radiographer should be well worth while.

EXPORT OF CATTLE TO THE CONTINENT

The Minister of Agriculture has announced in the House of Commons in reply to a Parliamentary Question that he and the Secretary of State for Scotland have made an Order implementing most of the recommendations of the Balfour Committee on the treatment of cattle at ports in this country before export to the Continent for slaughter.

The Order (the Exported Cattle Protection (Amendment) Order, 1957) comes into operation on August 22nd. It makes compulsory the veterinary inspection of cattle before export and prohibits the export of any cattle not certified as fit to travel. Minimum requirements are laid down for the premises where the cattle must be rested for at least 10 hours immediately before shipment; these cover the provision of protection from the weather all the year round, food in racks and water, and separate detention pens for animals that are ailing or that disturb other cattle. Not more than 40 cattle may be rested together in any compartment and they must be properly supervised. Ships must not sail with the cattle if the Master expects bad weather likely to cause the animals injury or suffering.

It is reported in the farming press that new regulations limiting cattle movement after disembarkation on the Continent are opposed to the views of the N.F.U. which is reported to have stated: "The proposal to impose a mileage limit from port of disembarkation is unrealistic, since it is the conditions under which animals travel and not the distance, that matters."

COMING EVENTS

July

30th (Tues.). British Small Animals Veterinary Association, Metropolitan Area, at Crown Tavern, Brewer Street, W.1, at 8.15 p.m.

August

25th-31st. 75th Annual General Meeting and Congress of the B.V.A. at Cambridge.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Lancs. Greta Mount Farm, Burton in Lonsdale, Carnforth (July 16).

Leics. The Farm, Packington, Ashby de la Zouch (July 18).

Fowl Pest

Aberdeenshire. Knockie Mill, Turriff, (July 16); East Hawkhillock, Ardallie, Mintlaw Station (July 18).

Lancs. Dunswold, Liverpool Old Road, Longton, Preston (July 16); Manor House Farm, Moss House Lane, Much Hoole, Preston; Gabbots Farm, Moss Lane, Much Hoole, Preston (July 17); Hornbys Farm, Forton, Preston; Hillcrest, Chapel Lane, Rufford, Ormskirk (July 19); Manor House Farm, Longton, Preston (July 20).

Yorks. 77, Brandy Carr Road, Kirkhamgate, Wakefield; Raikes Farm, Rong, Bradford (July 17).

Foot-and-Mouth Disease

Somerset. Harridge Farm, Oakhill, Bath; Green Farm, Downend, Shepton Mallet (July 20); Hillside Farm, Nettlebridge, Oakhill, Bath; Stoke Bottom Farm, Oakhill, Bath (July 22).

Wilts. Foxhill Farm, Wanborough, Swindon (July 22).

Swine Fever

Bucks. Hillview, Severals Avenue, Chesham; Bagmoor Farm, Frieth, Henley on Thames; Tythrope Park Farm, Kingsey, Aylesbury (July 18).

Cheshire. School Farm, Marston, Northwich (July 22).

Dorset. Little Budge Farm, Wyke Regis, Weymouth (July 22).

Durham. Whiteside Farm, Burnhope, Durham; Curlew Crooks, Tile Shed Lane, East Boldon (July 17).

Glouc.s. Elmington Manor Farm, Compton Greenfield, Bristol (July 22).

Hants. Dean Farm, Kingsley, Bordon (July 16).

Lancs. Hard Cragg, Grange-over-Sands (July 16).

Lincs. Waves Farm, Saxilby Road (July 22).

Sussex. Tolmare Farm, Findon, Worthing; East House, The Common, Henfield (July 22).

Warwicks. Berry Mount Farm, Peterbrook Road, Shirley (July 22).

Worcs. Cefn Lea Farm, Egg Lane, Drayton, Chaddesley Corbett, Kidderminster (July 17). Fibden Farm, Hampton Lovett, Droitwich (July 22).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Two-Way Radio Telephones

Sir,—I wonder why a statement of simple fact such as my declaration of mileage should provoke so many cynics to question my good faith? Let us make no mistake about it, that is what they are doing. I wonder what makes them? Is it jealousy?

I have no wish to write my autobiography in THE VETERINARY RECORD; indeed, Sir, I should be glad if you would remind your correspondents that *you* requested *me* to publish a paragraph on my reactions to the radio telephone.

I was surprised that the figure of 96,000 miles roused such disbelief, because though I knew that established "father and son" practices might depend on a reasonable level of work, I was under the impression that all practitioners who had come up the hard way had to work tremendously during the building of their practices. Only yesterday the son in a "father and son" practice admitted that he had had to do 66,000 miles in one year, following the death of his father, and I still think there must be many practitioners who, like myself, can look back on several years of absolute slavery to veterinary science.

During my tough years, such luxuries as sleeping, eating, and other "natural processes" had to take a very dim back seat. One completely unenlightened and obviously spoiled correspondent rashly suggested that I might have spent 1½ hours out of the 24 in eating. What nonsense! I had a 10-minute breakfast at 5.45 a.m. and a 20-minute meal any time between 11 p.m. and 4 a.m. the next morning. To stop for food during the day was unthinkable. During one year my father came out with me from about 9 a.m. to dusk every Monday to Friday. He used to keep a

bottle of water under the dashboard of the car. I had seen him drinking from this bottle occasionally and one day I asked him why. With his dry Scots humour he said, " Well, Gandhi could do it, so why not I?"

Before 1945 my vehicles were second-hand and I was not fortunate enough to have a consistently working speedometer. However, in 1945, on permit, I bought No. LRE 393 new. In exactly 12 months I did just over 93,000 miles. One correspondent talks of speeds of 32 m.p.h. on short journeys: good heavens! Has he never been busy?

In 1948 I bought a new car, in which I travelled 68,000 miles in 7½ months. Your correspondents should ask my local dealer about my mileages in those years. He part exchanged cars for me, and he knows how I used them.

It was with the next car on the list that I reached my highest annual mileage of just over 96,000 miles, all—and again the cynics can get their pens out—all on one engine.

During the same year, my colleague, Mr. D. P. McIntee, did over 68,000 miles.

I wish I could take the cynics back over these years and shake some of the complacency out of them. As I see it, the next 20 years in agricultural practice are going to be a very tough and trying period for us all. Some of those who have aired their cynicism, and who appear to be living in a fool's paradise, will certainly have their composure ruffled and their 8-hour day altered.

The real basis of the 2-way radio controversy was one of simple economics and, whilst back on the subject of economics, I now want to shake the complacent cynics further. The time has come for the immediate production of a scale of veterinary fees—and a scale compatible with the honour and integrity of our profession. How can the status of the profession be raised when all too many are ready to work for fees which would make a tradesman blush with shame? When one hears of professional men charging a fee of 3s. 6d. for dehorning cows and a fee of 3s. 6d. for a 15-mile journey, one almost despairs. The rot lies deep in our profession and even extends to our veterinary schools which offer pittances for lectureships.

Recently the average medical income was stated to be £2,200 odd and doctors now ask for a substantial increase—which they ought to receive. I wonder if anyone would have the temerity to work out the average veterinary surgeon's income? Certainly assistantships are still to be found at £1,000 per annum, but with the squeeze on agriculture how long can these last? I am certain the *average* income in the profession would shock us all and make us the laughing-stock of our medical confrères who, I venture to say, we equal in professional skill, knowledge, and service to the community. There is no profession in the world from which more is required than ours.

I believe that no qualified veterinary surgeon should earn less than £2,000 per annum, and that all principals should be in a position to pay assistants at least that amount. With a sensible scale of fees based on the present-day value of money, and in relation to pre-war fees, this would be as simple as A.B.C. What is stopping us? Are the leaders of our profession living in the past? If a strong stand on fees is not taken soon, progressive agricultural practitioners will go to the wall.

We must raise our profession to its rightful level, and I suggest that we can only do this by taking the following steps:—

Maintaining a reasonable scale of fees compatible with an average income of £2,500, and taking stern measures against any tendency to competitive fee cutting.

Requiring of our official representatives on negotiating and other bodies, that they take their rightful place as leaders in the field of animal disease.

Resisting any pressure by organised interests in agriculture.

As I see it, the veterinary profession can have a great future; but to ensure that future we must strengthen our professional position so as to maintain a dignified liaison with the leaders of the agricultural industry as equals, and carry out our work free from financial insecurity.

Yours faithfully,
E. C. STRAITON.

132, Lichfield Road,
Stafford.

July 22nd, 1957.

Sir,—I have not seen Eddie Straiton since we were at College together but our paths nearly crossed once about 1942 when I succeeded him as assistant in a practice in the North of England.

The principal was an elderly gentleman whose failing eyesight prevented him from driving in the blackout. I found my day was a 14- to 16-hour one, starting with the milk fever, or bloat case, at the 5.30 a.m. milking (failing which I could always do a tuberculin test or half a dozen clinical inspections) and finishing with the potato in the throat when the farmer wanted to get to bed at 10 p.m. In between was, to me, one mad rush. Sundays were Heaven-sent days meant to enable us to clear the back log so that we could start afresh on Mondays.

One day the boss said to me, " You're a Glasgow man. Do you know a chap called Straiton?" Guardedly I admitted to knowing him. " Queer fellow," he said, " you couldn't kill him with work."

My late uncle would have been interested to learn how far from killing Straiton he really was.

Yours faithfully,
J. DEANS RANKIN.

6, Benett Close,
Newbury,
Berks.

July 22nd, 1957.

Sir,—It must be a source of satisfaction to Mr. Straiton to know that his 2-way radio is saving him a lot of money, because, with a mileage like his, it must, obviously, have been high time something was done to cut down expenses. I would suggest that when he did his 96,000 miles in a year he spent a fortnight's holiday at Le Mans.

Yours faithfully,
T. S. ANDERSON.

Corner House,
Osborne Road,
Altrincham,
Cheshire.

July 21st, 1957.

Sir,—I have read with interest and considerable amusement your correspondents' criticisms of Mr. Straiton.

Did Mr. Straiton drive straight on, to the amazement of his waiting clients?

Yours faithfully,
HAMILTON KIRK.

28, Park Hill,
Ealing, W.5.

July 21st, 1957.

Dichlorophen and Contagious Foot-rot in Sheep

Sir,—During recent years much attention has been given to the use of a number of antibiotics for the treatment of contagious foot rot in sheep and these materials have contributed much to the control of the disease, making its eradication a possibility rather than a dream.

It is, however, interesting to note that even such powerful agents have to be used at relatively high concentrations in order that they may achieve results, so that whilst the cost of controlling foot-rot has been reduced because the antibiotics reduce the number of treatments necessary, this saving is virtually offset by the high cost of the drugs themselves.

In 1955 it occurred to us that attention had jumped from very simple substances such as copper sulphate and formalin into the realms of some of the most highly complicated drugs known, and that it would therefore be worth while investigating the effects of some of the many less complicated antibacterial agents which have been discovered during the last decade or so.

As a result of clinical trials it was found that the group of compounds known as chlorphenols contained members with admirable effects against foot-rot. One of them, dichlorophen, has shown itself to be outstandingly successful when applied in organic solvents at a concentration of 10 per cent. to the pared feet, and has achieved results which are comparable with those obtained with chloramphenicol.

Results were assessed by observing the number of affected feet which showed complete clinical recovery after treatment, compared with recovery in feet treated with other materials, or feet which were pared but otherwise untreated.

In a preliminary trial dichlorophen gave 100 per cent. recoveries in 30 feet compared with 72 per cent. recoveries using formalin 10 per cent. (formaldehyde 4 per cent), whilst 59 per cent. of the pared controls recovered during the period of observation.

In a further two trials, in which infections approximately equal in number and severity were treated with dichlorophen and chloramphenicol, both at 10 per cent. the recovery rates did not differ materially from each other.

It is hoped to publish a detailed account of these trials in THE VETERINARY RECORD at a later date.

Yours faithfully,
C. B. HART,
J. C. MALONE,
W. B. SPARROW.

The Cooper Technical Bureau,
Berkhamsted,
Herts.

July 19th, 1957.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-Mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 30th June, 1957		5	1	—	36	—	47
Corresponding period in	1956	15	—	1	54	—	37
	1955	17	1	—	24	—	77
	1954	6	—	—	13	—	103
1st January to 30th June, 1957		227	5	24	455	—	455
Corresponding period in	1956	1,018	6	13	323	—	387
	1955	442	1	6	271	—	848
	1954	150	3	12	541	—	824